



TITLE:

Chemical Studies on Radioactive Indicators. (XIV) : Preparation of Radioactive Manganese (Mn)

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Abstracts of Papers

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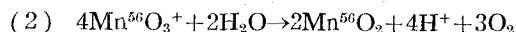
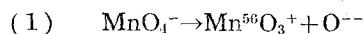
1. Chemical Studies on Radioactive Indicators. (XIV)

Preparation of Radioactive Manganese (Mn^{56})

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The authors prepared radioactive manganese Mn^{56} (H.L.=2.59hr) as MnO_2 from KMnO_4 solution, by the bombardment of neutron produced from Cockcroft-Walton instrument. This nuclear reaction is $\text{Mn}^{55} (n, \gamma) \text{Mn}^{56}$. In KMnO_4 solution, the following Szilard-Chalmers process (1) and the chemical process (2) are performed:



150gr of chemical pure KMnO_4 solution was enclosed with water tank. The bombardant time was 3 hrs. The Mn^{56}O_2 , produced by the reaction (2), was suspended in the solution, and collected on filter paper by the filtration. The solution was filtered through Büchner filter with two pieces of filter paper by sucking. The filter papers were ignited in porcelain crucible. Thus the radioactive manganese was obtained as MnO_2 . The time required for the experiment was 45 minutes. About 0.4–0.6 μC of Mn^{56} was obtained.

The authors have further tried another method for the filtration, and obtained the good results. At the end of the bombardment of neutron, some of paper pulp was added to the KMnO_4 solution and the solution was vigorously shaken and filtered by Gooch crucible which was sheeted with asbestos. After the filtration and the washing, the Gooch crucible was ignited.

In the latter method, the retention of Mn^{56} in the filtrate was as about half as in the first method.
